DiGiDiA

USER MANUAL

EasyDAB

User Manual

History of modification of this document

Reference: DT00009

Revision	Date	Product version	Modified sections	Comments
A	*26/06/06*	V1.00	-	*Creation*

WARNING

This document contains preliminary information about EasyDAB
DIGIDIA reserves the right to make changes at any time without prior notice in order to improve design and supply the best possible product.
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1 INTRODUCTION

This document is the user manual for the **EasyDAB** product.

It provides general information about the **EasyDAB** product, and detailed performance characteristics.

This user manual is divided into 6 sections where the user can find all the necessary information for the installation, the usual operation and the first level maintenance of it.

Section 1 – Introduction	⇨ This part gives a general presentation of this manual.
Section 2 – Product presentation	⇨ This part describes **EasyDAB** and its applications.
Section 3 – Features and performances	⇨ This part provides detailed information about interfaces and operation of the **EasyDAB**
Section 4 – Getting started	⇨ This part provides information about installation, configuration and normal operation of the **EasyDAB**
Section 5 – Maintenance	⇨ This part explains how to make first level maintenance.
Section 6 – Appendix	⇨ The appendixes give additional detailed information about the **EasyDAB** and its operation.

2 PRODUCT PRESENTATION

EasyDAB belongs to the DMB/DAB product line developed by DIGIDIA.

The **EasyDAB** DMB/DAB Integrated System provided by DIGIDIA is fully compliant to the DMB/DAB standard (Eureka147) and is specially designed for commercial networks. This device performs the DAB audio encoding process with the insertion of PAD (DLS and PAD MOT) and the multiplexing of an ETI (NI, G703) or ETI(NA, G704) transport stream. **EasyDAB** is also able to encode in real-time all standardized DAB data applications (Slide Show, Broadcast Web Site or IP Tunnelling) and video in both DMB (Digital Multimedia Broadcasting) or EPM (Enhanced Packet Mode) formats.

All setup, control and monitoring of the **EasyDAB** DMB/DAB Integrated System is done through an Ethernet link and using Internet Explorer running on any kind of computer with friendly HTML pages. Alarms can also be controlled and monitored by any standard SNMP managers (standard MIB).

EasyDAB includes a PC board packaged in a 2U 19" rack and gives to the user, guarantees of reliability and robustness against severe environment including EMC constraints.

3 FEATURES AND PERFORMANCES

3.1 Generalities

EasyDAB DMB/DAB Integrated System depicted in figure 1 provides:

- DAB multiplexing according to the ETI standards (see References);
- ETI(NI, G703) or ETI(NA, G704) output formats;
- External GPS receiver as an option;
- One audio input (Digital or Analog);
- Multiple configuration management for operations;
- SNMP alarms reporting and control for operations;
- Text message insertion (DLS: Dynamic Label Segment);
- MOT PAD data insertion **as an option** (MOT Slide Show, MOT Broadcast Web Site);
- User-friendly HTTP interface for configuration management and network supervision;
- Unlimited data application management **as an option** (MOT Slide Show, MOT Broadcast Web Site, IP Tunnelling...);
- Video program insertion **as an option** (both DMB and DAB-EPM supported);
- User-friendly data application edition and API for automated data insertion **as an option**;
- Up to 3 additional audio inputs **as an option** (Analog only);

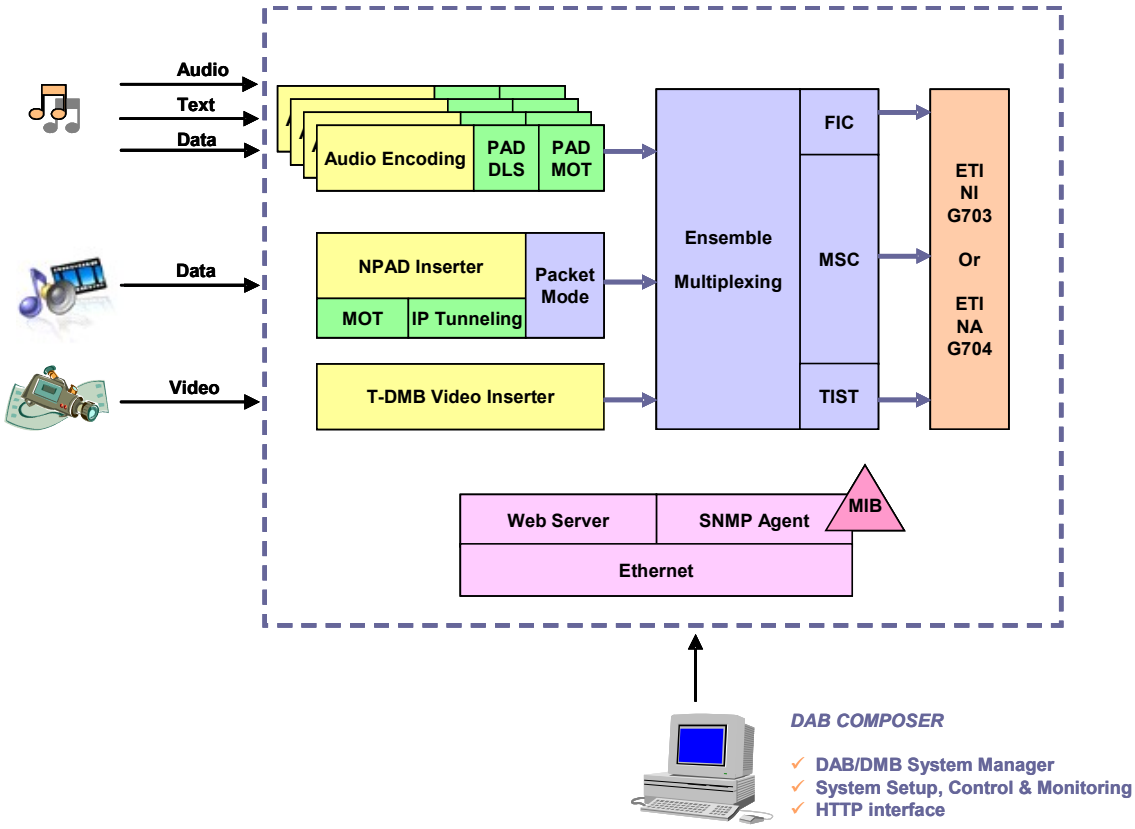


Figure 1: EasyDAB functional diagram.

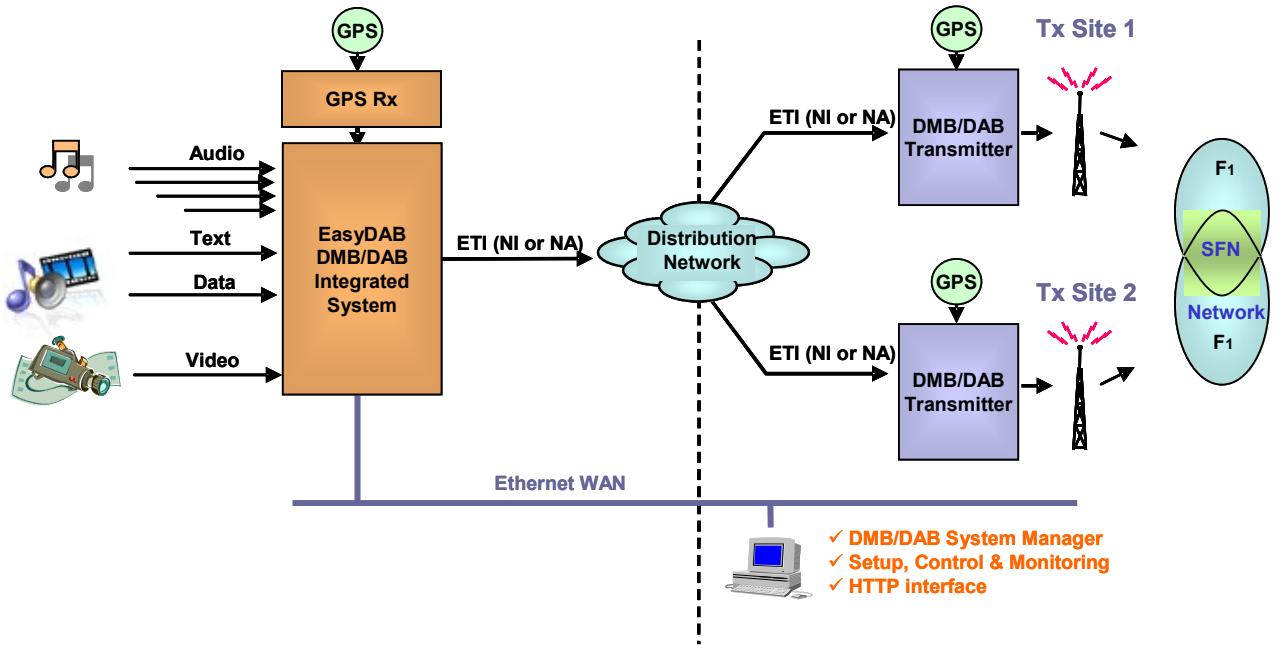


Figure 2: Typical system implementation.

Typical DMB/DAB network setup is depicted in figure 2. The **EasyDAB** DMB/DAB Integrated System is providing DMB/DAB encoding of audio, text, data and video and for a SFN network based on multiple DMB/DAB Transmitters.

3.2 Power requirements

3.2.1 Main voltage specifications

The DIGIDIA equipment can be operated within the following ranges:

Input voltage	Frequency
85 to 264 volts	47 to 63 Hz

The DIGIDIA equipment is delivered with a redundant power supply. Assure that both power supplies are connected. In case of unplugged power supply, the equipment power led on front panel is lightening red and the power supply supervisor rings.

WARNING

Equipment must be switch off and main line supply disconnected to network before all open operation or only by qualified staff.

3.3 Safety requirements

Equipment connected to the mains by plug on TN or TT power systems, socket-outlet shall be installed near the equipment and shall be easily accessible.

Class I equipment (only connected to a socket-outlet with a protective earth connection).

Installation category II.

Pollution degree 2.

The **EasyDAB** equipment must be connected to earth ⏚ in accordance to CEI364 (NFC15-100).

3.4 EMC compliance

The **EasyDAB** equipment complies with the European Directives for Electromagnetic Compatibility (EMC 89/336/EEC).

The equipment complies with the EN55022-B class and the EN50082-1 standards.

EMC characteristics can be guaranteed only if input / output cables with appropriate shielding are used.

It is necessary to establish a direct short connection between the earth connection point of the rack and any grounding point available on the bay or chassis in which the system is installed in order to meet EMC constraints.

3.5 Transport requirements

Use only the original packing for the transport of any equipment.

WARNING

The **EasyDAB** remains under guarantee only if this condition is met.

3.6 Storage requirements

Recommended storage temperature	-20° C and +70° C.
Recommended relative humidity	10 to 80 % at 50°C

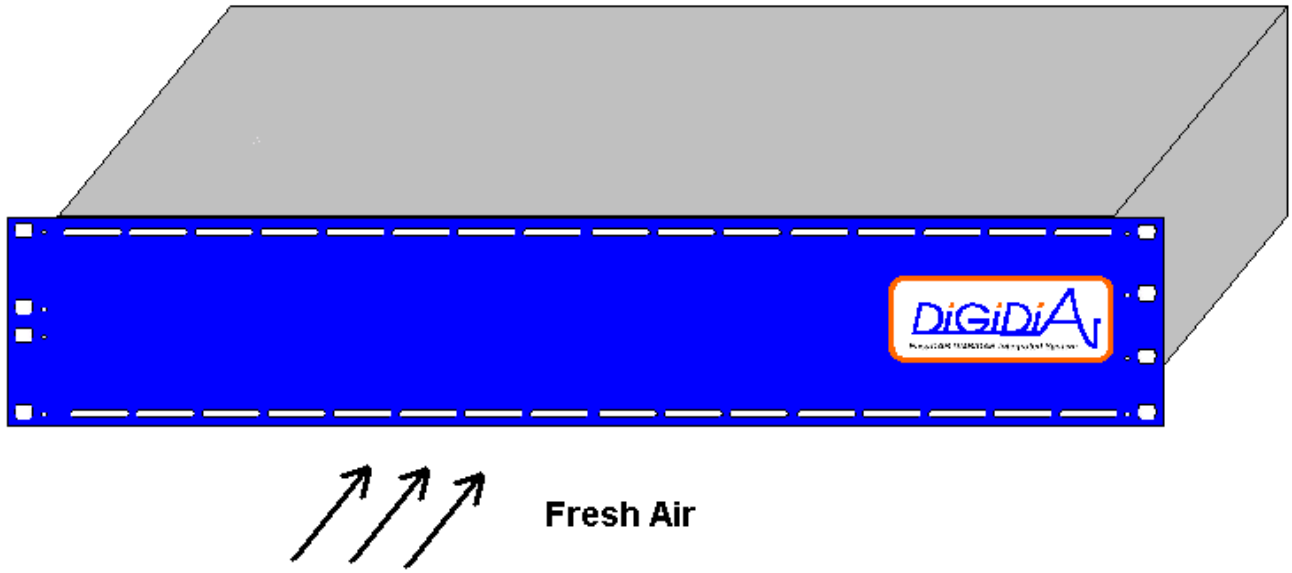
3.7 Environmental requirements

3.7.1 Temperature

Correct operation of the **EasyDAB** equipment is insured in an ambient temperature between the following limits: + 0°C and + 50°C.

Power dissipation of the product with all options installed does not exceed 20 W.

3.7.2 Cooling



Multiple internal fans cool **EasyDAB** in its 2RU configuration. The airflow is entering the unit through the front panel and ejected through the rear panel.

3.7.3 Altitude

The **EasyDAB** equipment can be used from sea level up to 4000 m over sea level.

3.8 Mechanical Characteristics

3.8.1 Weight and dimensions (EasyDAB only)

- Weight: 15 kg
- Dimensions (W x D x H): 483 mm (19'') x 640 mm x 88,5 mm (2RU)

3.8.2 Weight and dimensions (EasyDAB in its original packing, ready for shipment)

- Weight: 20 kg
- Dimensions (W x D x H): 800 mm * 900 mm * 400 mm

4 GETTING STARTED

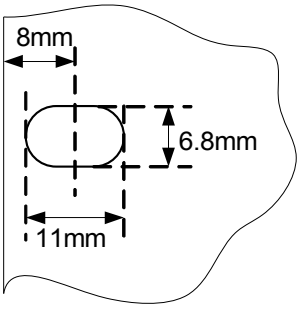
4.1 Unpacking the EasyDAB rack

1. Check the packing against transport damage. If it is the case, please contact the carrier immediately.
2. Be careful while unpacking, the equipment may be heavy and must be handled with care.
3. Keep the original packing for further transport.
4. Check the equipment against transport damage.
5. Check if the expected electric cable and the user manual are provided.

4.2 First start up

The equipment must be installed in a 19 inch bay.

Several holes are available on the front panel to tighten the rack inside the cabinet, as presented in the following diagram:



WARNING

Service work described in this paragraph must be carried out by trained staff.

Because of the weight of the rack, mounting it into a cabinet requires the rack to be supported by rails and not by the front panel only.

1. Install all necessary cables included the two audio cables (refer to 6.3.3).
2. Make sure the equipment is correctly grounded.
3. Make sure the air flow around the equipment permits an optimal cooling. (Do not obstruct the blower output). No other equipment should be installed directly under and above the **EasyDAB** equipment.
4. Connect the power supply

WARNING

To prevent damage to the equipment, check the main voltage, current and frequency available which must be in the range of DIGIDIA specifications.

1. Switch your device on

WARNING

EasyDAB can be controlled using a web browser installed on a computer. An on-line help is available for each menu.

The **default settings** are the following :

- IP address: **10.64.0.1**
- Subnet Mask: **255.240.0.0**
- Gateway : **10.64.0.1**
- Equipment name : **EasyDABxxx;** xxx corresponds to the **EasyDAB** serial number
- Equipment comment : **NO COMMENT**
- User/Password : **public/public** (level 1); level 1 is the less restricted access level.
- LogFile : no event

5 MAINTENANCE

5.1 Reading the log file

EasyDAB includes a log file in which the 256 last events are stored. Use the web browser to read it.

5.2 First level maintenance

Because of the digital technology used in the DIGIDIA equipment, the first level maintenance is restricted to an exchange of the whole equipment.

WARNING

Make sure the operator has an easy and safe access to the equipment.

5.2.1 Rack replacement

See the following « Uninstalling the equipment » section.

5.2.2 Uninstalling the equipment

WARNING

---

1. Make sure the operator has an easy and safe access to the equipment.
2. Switch the equipment off, and remove its corresponding main cable.
3. Remove all other cables.
4. Remove all necessary screws, including its back plane screw.
5. Extract the unit from its housing by pulling out the unit by its front panel handles.
6. In case the equipment is replaced by a spare one, see « First start-up » section.
7. Check that the place is still safe for the operation of the rest of the equipment in the bay.

6 APPENDIX

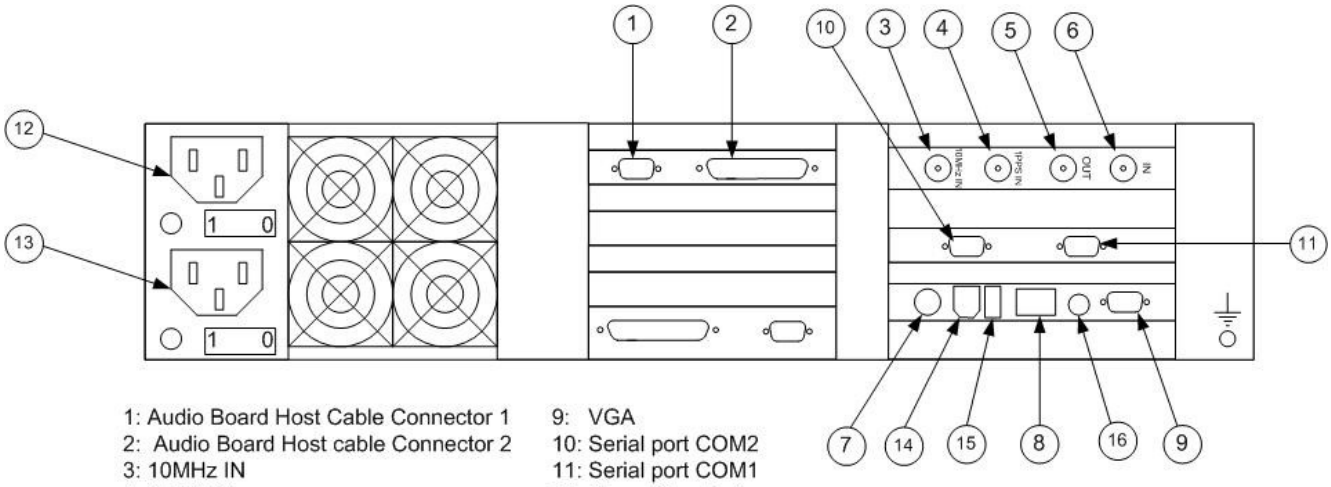
6.1 Glossary

BWS	: Broadcast Web Site
DAB	: Digital Audio Broadcasting
DLS	: Dynamic Label Segment
DMB	: Digital Multimedia Broadcasting
EPM	: Enhanced Packet Mode
ETI	: Ensemble Transport Interface
GPS	: Global Positioning System
HTTP	: Hyper Text Tranfer Protocol
MIB	: Management Information Base
MOT	: Multimedia Object Transfer
PAD	: Program Associated Data
SFN	: Single Frequency Network
SNMP	: Simple Network Management Protocol
TCP / IP	: Internet Suite of Protocols

6.2 References

[1]	TS 102 427	Digital Audio Broadcasting (DAB); Data Broadcasting - MPEG-2 TS streaming
[2]	TS 102 428	Digital Audio Broadcasting (DAB); DMB video service; User Application Specification
[3]	TS 101 759	Digital Audio Broadcasting (DAB); DAB Data Broadcasting Transparent Data Channel
[4]	TR 101 497	Digital Audio Broadcasting (DAB); Rules of Operation for the Multimedia Object Transfer Protocol
[5]	TS 101 499	Digital Audio Broadcasting (DAB); MOT Slide Show; User Application Specification
[6]	EN 300 401	Digital Audio Broadcasting (DAB); DAB to mobile, portable and fixed receivers
[7]	ES 201 735	Digital Audio Broadcasting (DAB); Internet Protocol Datagram Tunnelling
[8]	TS 101 498-2	Digital Audio Broadcasting (DAB); Broadcast Web Site Application, Part 2: Basic Profile Specification
[9]	TS 101 498-1	Digital Audio Broadcasting (DAB); Broadcast Web Site Application, Part 1:User Application Specification
[10]	EN 301 234	Digital Audio Broadcasting (DAB); Multimedia Object Transfer (MOT) protocol
[11]	ETS 300 799	Digital Audio Broadcasting (DAB); Distribution interfaces; Ensemble Transport Interface (ETI)
[12]	EN 550022-B	Limits and methods of measurement of radio interferences characteristics of information technology equipment
[13]	EN 50082-1	Generic immunity standard – Part 1: Domestic commercial and light industry

6.3 Rear panel of EasyDAB



1: Audio Board Host Cable Connector 1
2: Audio Board Host cable Connector 2
3: 10MHz IN
4: 1PPS IN
5: G703 OUT
6: G703 IN
7: Keyboard / Mouse
8: LAN
9: VGA
10: Serial port COM2
11: Serial port COM1
12: Power Supply 1
13: Power Supply 2
14: IEEE 1394 port
15: USB 2.0/1.1 port
16: Audio Headphone Out

6.3.1 ETI input/output (5 & 6)

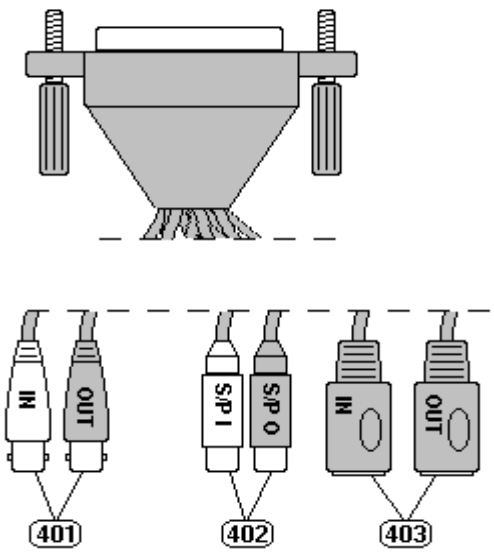
BNC 75Ω connectors – HDB3 2,048Mbits/s
ETI Input (6) is reserved for future use.

6.3.2 Synchro inputs (3 & 4)

BNC 50Ω connectors
These connectors are only used when the SFN (Single Frequency Network) option is required.

6.3.3 Audio inputs

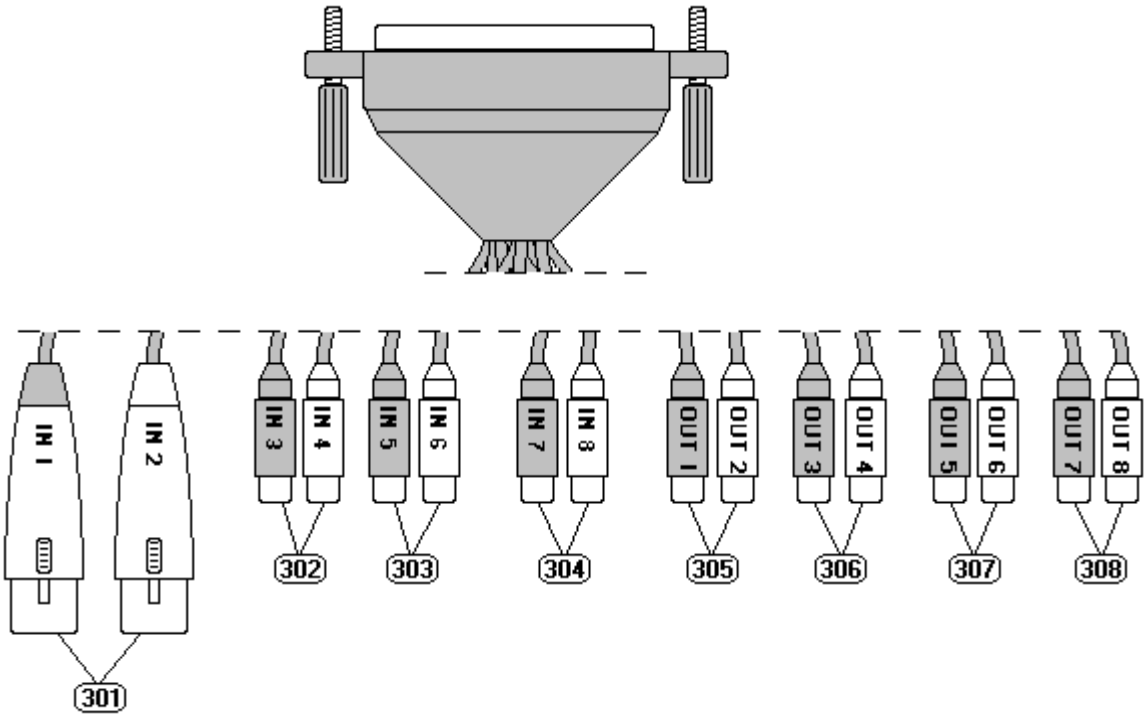
'Synchro connector' (see below) to be connected to **'Audio Board Host Cable Connector 1'** (DB9 female connector)



Digital input (402 – S/P I) is a RCA female connector, SP/DIF format

Connectors 401 (IN & OUT), 402 (S/P O) and 403 (IN & OUT) are reserved for future use.

'Audio connector' (see below) to be connected to **'Audio Board Host Cable Connector 2**' (DB25 female connector)



Analog input (301 - IN1 & IN2) is a XLR female connector balanced, line.

Analog inputs (302 – IN1 & IN2; 303 – IN1 & IN2 and 304 – IN1 & IN2) are RCA female connectors balanced, line and are only used when more than one input and up to four audio inputs options are required.

Analog outputs (305 – OUT1 & OUT2; 306 – OUT1 & OUT2; 307 – OUT1 & OUT2 and 308 – OUT1 & OUT2) are reserved for future use.

6.4 Control Software

EasyDAB can be controlled using a web browser installed on a computer.

System required: A computer with Windows (Millenium, NT, 2000 or XP) is required with Internet Explorer 6.0 (or higher) and JavaScript V1.5 installed.

A network board have to be installed on this computer with the following settings :

- **IP address** : 10.64.x.y with x and y different of the **EasyDAB** IP address ($x \neq 0$ or $y \neq 1$) in the case of the default IP address of **EasyDAB** (10.64.0.1)
- **Subnet Mask** : 255.240.0.0 corresponding to the default subnet mask of **EasyDAB**.

The connection between **EasyDAB** and the computer can be either made directly with a RJ45 crossed cable or through a standard Ethernet Hub for instance with a RJ45 direct cable.

To check to the good network settings, ping the **EasyDAB** device in a DOS window (ping 10.64.0.1).

6.4.1 Control the EasyDAB

To control **EasyDAB** :

- Launch Internet Explorer,
- Fill in the address field : http://10.64.0.1 (10.64.0.1 corresponds to the default IP address of **EasyDAB**), Automatically, the welcome page appears.
- fill in User/Password fields with **public/public** (level 1 is the less restricted access level).

For more information about the control software, read the on-line help.

6.5 Warranty terms

6.5.1 Standard product warranty

This DIGIDIA product is warranted against defects in material and workmanship for a period of one year from date of shipment. During the warranty period, DIGIDIA will, at its option, either repair or replace products which prove to be defective, free-of charge.

For warranty service or repair, this product must be returned to DIGIDIA France. Buyer shall prepay shipping charges to DIGIDIA and DIGIDIA shall pay shipping charges to return the product to buyer.

Products returned for repair outside of the warranty period will be charged on a per unit basis. Per unit charges are established for each product repair as they arise.

On request, a customer / supplier contract may be established for extending these warranty terms on a yearly basis.

6.5.2 Limitation of warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

6.6 Instructions in case of return to factory

In case you need to return your equipment to DIGIDIA for updating or maintenance, please use the following procedure:

- Call the hot line at DIGIDIA before shipping your equipment, in order to check whether it is really necessary to return it.
- The shipment back to DIGIDIA is organised by the customer and at his expense and DIGIDIA will organise and pay the return after repair to the customer's company. If you are part of an EEC country, the shipment is at your expense until DIGIDIA's premises. If you are outside EEC, the shipment is at your expense until RENNES SAINT-JACQUES airport (France).
- During the guarantee period, the repair is free of charge. If your equipment is out of guarantee and if you have no maintenance contract (*), DIGIDIA will send you by fax a quotation for this repair that you have to acknowledge by sending the form back.
- Always use the original packing in which the equipment had been delivered to you.
- Do not return any documentation or cables (power cord or other).
- Use the attached form to explain the reason of the return and, when necessary, the problems encountered.
- Send the equipment to:

DIGIDIA
Customer Support Department
Immeuble Orchis
Les landes d'Apigné
35650 LE RHEU - France
Tel: +33 (0)2 99 14 63 32
Fax: +33 (0)2 99 14 58 83
Email:support@digidia.fr

(*) If you want to set up a maintenance contract, please contact our sales department.

Model of report for return to factory

From:
Telephone:

Company:
Telefax:

🗁 Under guarantee
🗁 Other (quotation will be submitted)

🗁 Under a maintenance contract

Type of system:
🗁 **EasyDAB**

Reason of return:
🗁 Update
🗁 Upgrade
🗁 Maintenance

Type of problem:
🗁 Hardware
🗁 Software
🗁 Undefined

Equipment Serial Number	FIRMWARE Version	PC software Name/Version

Equipment Specificity (option, embedded boards, modem, etc.)

Problem Specification (Front Panel state, Software menu, Error messages, etc.)

Immeuble Orchis Les landes d'apigné -F-35560 LE RHEU
Tel:+33 (0)2 99 14 63 32 - Fax:+33 (0)2 99 14 58 83 – Email: contact@digidia.fr

ELECTROMAGNETIC COMPLIANCE

STATEMENT

(EEC directive 89/336 article 10)

Manufacturer name: **DIGIDIA**

Address: **Immeuble Orchis**
Les landes d'apigné
35650 LE RHEU - FRANCE

Equipment designation: **DAB-EASY1; DAB-EASY2; DAB-EASY3; DAB-EASY4**

M. OLIVIER Pascal, Manager

Declare having the strong presumption that the above designated equipment complies with the essential EEC89/336 directive requirements, by application of the standards listed below:

EN55022 Class A	EN61000-3-3
EN55011 Group 1 Class A	EN61000-6-2
EN61000-3-2 Class D	

Le Rheu, April 2006

Immeuble Orchis Les landes d'apigné -F-35560 LE RHEU
Tel:+33 (0)2 99 14 63 32 - Fax:+33 (0)2 99 14 58 83 – Email: contact@digidia.fr

SAFETY COMPLIANCE

STATEMENT

(EEC directive 73/23)

Manufacturer name: **DIGIDIA**

Address: **Immeuble Orchis**
Les landes d'apigné
35650 LE RHEU - FRANCE

Equipment designation: **DAB-EASY1; DAB-EASY2; DAB-EASY3; DAB-EASY4**

M. OLIVIER Pascal, Manager

Declare having the strong presumption that the above designated equipment complies with the essential EEC73/23 directive requirements, by application of the standards listed below:

NF EN 60950
NF EN 60215

Le Rheu, April 2006

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